

Thin Air

By LCdr Pete Yelle

My first cross-country trip to the San Francisco Bay area included several training sorties for the TraCom. Because of the limited number of T-39 N models in the inventory, several CT-39s were brought out of retirement and converted to G models, which we used for non-ground mapping, air-to-air radar, and NFO trainers. So, as we boarded the mighty T-39G, our anticipation grew. CTW-6 SOP allowed for up to seven souls on board, so we could facilitate many student sorties during our trip. On that sunny summer morning, we had a full bus.

With the engines cranked and the cool AC blowing, we settled in for our long trek. During these NFO-training sorties, the instructor NFO sits in the modified jump seat between the pilot's and copilot's seats, and the student occupies the copilot's seat. The pilot for this event was an experienced, NATOPS-qualified, civilian-contract pilot, who had more than 10,000 hours of flight time, mostly in USAF tactical jets and our T-39N models. The major CRM issues with the T-39G is that during its upgrades, each aircraft ended up with a somewhat different cockpit-instrument configuration, and each differed significantly from the T-39Ns.

The most obvious model variation is the cabin-pressure regulators and their associated instruments. The N's pressure system is controlled automatically, like most Navy tactical



jets: The cabin is pressurized at 8,000 feet, and the regulators maintain a fixed scale as the aircraft climbs to higher flight levels. The G model had a manual regulator, which is set by the copilot if the planned cruising altitude is expected to be greater than about 14,000 feet. To make matters worse, the cabin pressure and cabin vertical-speed-indicator (VSI) gauges are in different cockpit locations throughout the G models—a significant difference from the N's. NFO instructors are very aware of the gauge locations and tend to closely hawk them during

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flight. However, your routine instrument scan must be altered from aircraft to aircraft, which aviators know is not good. Since our flight would be long and high, my game plan was to pay even more attention to those specific, seemingly invisible gauges.

We had an uneventful takeoff and climb-out to FL310 and leveled off with the Mississippi River in clear view—visibility unlimited. Just as I commented on the superb flying conditions and how well the jet was working (yeah, I know, super jinx), things began to go bad.

As I checked the cabin VSI gauge—for what seemed like the millionth time—it cycled from a positive 500-feet-per-minute to a negative 500-feet-per-minute. Before I could utter a word, it pegged negative, and we had a rapid decompression at 31,000 feet. The pilot and I executed the boldface, and I began to coordinate a descent and notified the rest of the crew of our pressurization failure. Part of the boldface requires manual deployment of the oxygen masks (the same system as the airliners). An emergency-automatic-deployment activation is supposed to automatically drop the masks; however, neither the auto- nor the manual-deployment systems worked as advertised. Fortunately, another instructor in the back pulled open the mask doors and activated them for the aft students.

We were busy coordinating the descent from up front, which was a CRM nightmare because of the emergency-ICS-system activation. Anyone who has flown in the T-39 (N or G model) know how painful it is to communicate over the ICS or UHF-VHF radios, while wearing the oxygen masks. Even with the hundreds of times I had demonstrated the system for students and had practiced the procedures, I still couldn't make it work to where the controllers could understand me over the noise. I was forced to stay on normal ICS and the radios, while taking breaths from the oxygen mask in my other hand. Even while coordinating the emergency with ATC and the crew, I fully was aware of my risk of hypoxia and knew to get on oxygen when I felt hypoxic.

In retrospect, I somehow instinctively knew my limits and how long I had off oxygen before I'd feel the effects of hypoxia. The every-four-year aviation-physiology training required for aviators, including the chamber ride and associated ground school, were key in my recognizing the symptoms and helped me keep useful consciousness throughout.

We descended below 10,000 feet and recovered back home. I still haven't been to the Bay area, but, thanks in large part to our av-phys training, I'm able to live another day and prepare for my next flight. 🦅

LCdr. Yelle flies with VAQ-130.